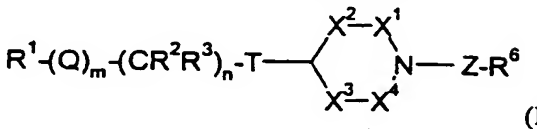
CLAIMS

1. The present invention provides a compound of formula (I):



(I)

wherein

Z is CR^4R^5, C(O) or CR^4R^5-Z^1;

Z^1 is C_{1-4} alkylene, C_{2-4} alkenylene or C(O)NH;

R^1 represents a C_1-C_{12} alkyl group optionally substituted by one or more substituents independently selected from cyano, hydroxyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, C_{3-7} cycloalkyl, C_1-C_6 alkoxycarbonyl and phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl); or

R^1 represents C_2-C_6 alkenyl optionally substituted by phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl); or

R^1 represents a 3- to 14-membered saturated or unsaturated ring system which optionally comprises up to two ring carbon atoms that form carbonyl groups and which optionally further comprises up to 4 ring heteroatoms independently selected from nitrogen, oxygen and sulphur, wherein the ring system is optionally substituted by one or more substituents independently selected from: halogen, cyano, nitro, oxo, hydroxyl, C_1-C_8 alkyl, C_1-C_6 hydroxyalkyl, C_1-C_6 haloalkyl, C_{1-6} alkoxy(C_1-C_6 alkyl), C_3-C_7 cycloalkyl(C_1-C_6 alkyl), C_1-C_6 alkylthio(C_1-C_6 alkyl), C_1-C_6 alkylcarbonyloxy(C_1-C_6 alkyl), C_1-C_6 alkyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl), heterocyclyl(C_1-C_6 alkyl), aryl$S(O)_2$(C_1-C_6 alkyl), heterocyclyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl)$S(O)_2$, heterocyclyl(C_1-C_6 alkyl)$S(O)_2$, C_2-C_6 alkenyl, C_1-C_6 alkoxy, carboxy-substituted C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_1-C_6 hydroxyalkoxy, C_1-C_6 alkylcarboxy-substituted C_1-C_6 alkoxy, aryloxy, heterocyclyloxy, C_1-C_6 alkylthio, C_3-C_7 cycloalkyl(C_1-C_6 alkylthio), C_3-C_6 alkynylthio, C_1-C_6 alkylcarbonylamino, C_1-C_6 haloalkylcarbonylamino, SO_3H, $-NR^7R^8$, $-C(O)NR^{23}R^{24}$, $S(O)_2NR^{18}R^{19}$, $S(O)_2R^{20}$, $R^{25}C(O)$, carboxyl, C_1-C_6 alkoxycarbonyl, aryl and heterocyclyl;

wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, oxo, hydroxy, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl;

m is 0 or 1;

Q represents an oxygen or sulphur atom or a group NR^9, C(O), $C(O)NR^9$, $NR^9C(O)$ or CH=CH;

n is 0, 1, 2, 3, 4, 5 or 6 provided that when n is 0, then m is 0;

each R^2 and R^3 independently represents a hydrogen atom or a C_1-C_4 alkyl group, or $(CR^2R^3)_n$ represents C_3-C_7 cycloalkyl optionally substituted by C_1-C_4 alkyl;

T represents a group NR^{10}, $C(O)NR^{10}$, $NR^{11}C(O)NR^{10}$ or $C(O)NR^{10}NR^{11}$;

X^1, X^2, X^3 and X^4 are, independently, CH_2, CHR^{12} {wherein each R^{12} is, independently, C_1-C_4 alkyl or C_3-C_7 cycloalkyl(C_1-C_4 alkyl)} or C=O; or, when they are CHR^{12}, the R^{12} groups of X^1 and X^3 or X^4, or, X^2 and X^3 or X^4 join to form a two or three atom chain which is CH_2CH_2, $CH_2CH_2CH_2$, CH_2OCH_2 or CH_2SCH_2; provided always that at least two of X^1, X^2, X^3 and X^4 are CH_2;

R^4 and R^5 each independently represent a hydrogen atom or a C_1-C_4 alkyl group;

R^6 is aryl or heterocyclyl, both optionally substituted by one or more of: halogen, cyano, nitro, oxo, hydroxyl, C_1-C_8 alkyl, C_1-C_6 hydroxyalkyl, C_1-C_6 haloalkyl, C_{1-6} alkoxy(C_1-C_6 alkyl), C_3-C_7 cycloalkyl(C_1-C_6 alkyl), C_1-C_6 alkylthio(C_1-C_6 alkyl), C_1-C_6 alkylcarbonyloxy(C_1-C_6 alkyl), C_1-C_6 alkyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl), heterocyclyl(C_1-C_6 alkyl), aryl$S(O)_2$(C_1-C_6 alkyl), heterocyclyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl)$S(O)_2$, heterocyclyl(C_1-C_6 alkyl)$S(O)_2$, C_2-C_6 alkenyl, C_1-C_6 alkoxy, carboxy-substituted C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_1-C_6 hydroxyalkoxy, C_1-C_6 alkylcarboxy-substituted C_1-C_6 alkoxy, aryloxy, heterocyclyloxy, C_1-C_6 alkylthio, C_3-C_7 cycloalkyl(C_1-C_6 alkylthio), C_3-C_6 alkynylthio, C_1-C_6 alkylcarbonylamino, C_1-C_6 haloalkylcarbonylamino, SO_3H, $-NR^{16}R^{17}$, $-C(O)NR^{21}R^{22}$, $S(O)_2NR^{13}R^{14}$, $S(O)_2R^{15}$, $R^{26}C(O)$, carboxyl, C_1-C_6 alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl;

R^7, R^8, R^9, R^{10}, R^{11}, R^{13}, R^{14}, R^{16}, R^{17}, R^{18}, R^{19}, R^{21}, R^{22}, R^{23} and R^{24} are, independently hydrogen, C_1-C_6 alkyl, C_1-C_6 haloalkyl, C_1-C_6 hydroxyalkyl, C_3-C_7 cycloalkyl, C_3-C_7 cycloalkyl(C_1-C_4 alkyl) or phenyl(C_1-C_6 alkyl); and,

R^{15} and R^{20} are, independently, C_1-C_6 alkyl, C_1-C_6 hydroxyalkyl, C_3-C_6 cycloalkyl, C_3-C_7 cycloalkyl(C_1-C_4 alkyl) or C_1-C_6 alkyl optionally substituted by phenyl;

R^{25} and R^{26} are, independently, C_1-C_6 alkyl or phenyl (optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl);

or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof;

provided that when T is $C(O)NR^{10}$ and R^1 is optionally substituted phenyl then n is not 0.

2. A compound according to claim 1, wherein Q represents a sulphur atom or a group NH, C(O) or NHC(O).

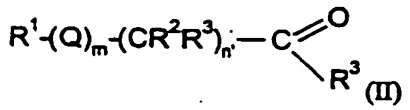
3. A compound according to claim 1 or claim 2, wherein T represents a group NH, C(O)NH or NHC(O)NH.

4. A compound according to any one of claims 1 to 3, wherein X^1, X^2, X^3 and X^4 are all CH_2.

5. A compound as defined in any one of Examples 1 to 416.

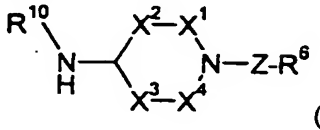
6. A process for the preparation of a compound of formula (I) as defined in claim 1 which comprises:

(a) when n is at least 1, the CR^2R^3 group attached directly to T is CHR^3 and T is NR^{10}, reacting a compound of general formula



(II)

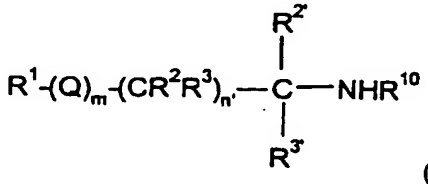
wherein n' is 0 or an integer from 1 to 3 and R^1, R^2, R^3, m and Q are as defined in formula (I), with a compound of general formula



(III)

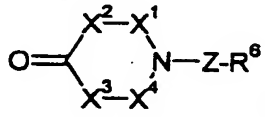
or a salt thereof, wherein X^1, X^2, X^3, X^4, Z, R^6 and R^{10} are as defined in formula (I), in the presence of a reducing agent; or

(b) when n is at least 1, the CR^2R^3 group attached directly to T is $C(C_1\text{-}C_4\ alkyl)_2$ and T is NR^{10}, reacting a compound of general formula



(IV)

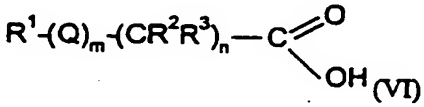
wherein n' is 0 or an integer from 1 to 3, $R^{2'}$ and $R^{3'}$ each independently represent a C_1-C_4 alkyl group, and R^1, R^2, R^3, R^{10}, m and Q are as defined in formula (I), with a compound of general formula



(V)

wherein X^1, X^2, X^3, X^4, Z and R^6 are as defined in formula (I), in the presence of a reducing agent; or

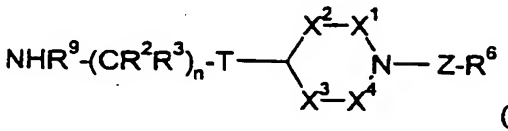
(c) when T is $C(O)NR^{10}$, reacting a compound of general formula



(VI)

wherein R^1, R^2, R^3, Q, m and n are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

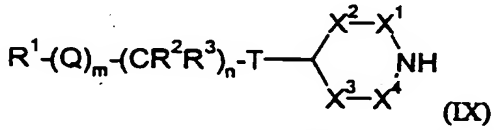
(d) when m is 1 and Q is NR^9, reacting a compound of general formula (VII), R^1 - L^1, wherein L^1 represents a leaving group (e.g. a halogen atom) and R^1 is as defined in formula (I), with a compound of general formula



(VIII)

or a salt thereof, wherein n, T, X^1, X^2, X^3, X^4, Z, R^2, R^3, R^6 and R^9 are as defined in formula (I); or

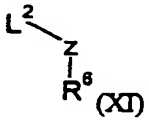
(e) when at least one of R^4 and R^5 represents a hydrogen atom, reacting a compound of general formula



(IX)

or a salt thereof, wherein R^1, R^2, R^3, Q, m, n, X^1, X^2, X^3, X^4 and T are as defined in formula (I), with a compound of general formula (X), R^6 - C(O) - R^{20}, wherein R^{20} represents a hydrogen atom or a C_1-C_4 alkyl group and R^6 is as defined in formula (I), in the presence of a reducing agent; or

(f) reacting a compound of formula (IX) as defined in (e) above, with a compound of general formula



(XI)

wherein L^2 represents a leaving group (e.g. a halogen atom) and Z and R^6 are as defined in formula (I); or

(g) when T is NR^{10}, reacting a compound of general formula

$$R^1\text{-}(Q)_m\text{-}(CR^2R^3)_n\text{—}\ L^3 \quad \text{(XII)}$$

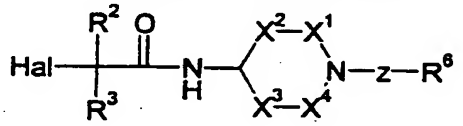
wherein L^3 represents a leaving group (e.g. a halogen atom) and R^1, R^2, R^3, m, n and Q are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

(h) when T is $NHC(O)NR^{10}$, reacting a compound of general formula

$$R^1\text{-}(Q)_m\text{-}(CR^2R^3)_n\text{—}\ N{=}C{=}O \quad \text{(XIII)}$$

wherein R^1, R^2, R^3, Q, m and n are as defined in formula (I), with a compound of formula (III) or a salt thereof as defined in (a) above; or

(i) when T is C(O)NH, Z is CH_2, n is 1, R^2 and R^3 are hydrogen or C_1-C_4 alkyl and Q is oxygen or sulphur, reacting a compound of formula (XIV):



(XIV)

wherein Hal is a suitable halogen, R^2, R^3, X^1, X^2, X^3, X^4, Z and R^6 are as defined in formula (I), with R^1OH or R^1SH in the presence of a suitable base;

and optionally after (a), (b), (c), (d), (e), (f), (g), (h) or (i) forming a pharmaceutically acceptable salt or solvate of the compound of formula (I) obtained.

7. A pharmaceutical composition comprising a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 in association with a pharmaceutically acceptable adjuvant, diluent or carrier.

8. A process for the preparation of a pharmaceutical composition as claimed in claim 7 which comprises mixing a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 with a pharmaceutically acceptable adjuvant, diluent or carrier.

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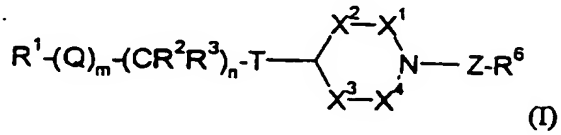
9. A compound of formula (I), or a pharmaceutically-acceptable salt or solvate thereof, as claimed in any one of claims 1 to 4 for use in therapy.

10. Use of a compound of formula (I),



(I)

wherein

Z is CR^4R^5, C(O) or CR^4R^5-Z^1;

Z^1 is C_{1-4} alkylene, C_{2-4} alkenylene or C(O)NH;

R^1 represents a C_1-C_{12} alkyl group optionally substituted by one or more substituents independently selected from cyano, hydroxyl, C_1-C_6 alkoxy, C_1-C_6 alkylthio, C_{3-7} cycloalkyl, C_1-C_6 alkoxycarbonyl and phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl); or

R^1 represents C_2-C_6 alkenyl optionally substituted by phenyl (itself optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl); or

R^1 represents a 3- to 14-membered saturated or unsaturated ring system which optionally comprises up to two ring carbon atoms that form carbonyl groups and which optionally further comprises up to 4 ring heteroatoms independently selected from nitrogen, oxygen and sulphur, wherein the ring system is optionally substituted by one or more substituents independently selected from: halogen, cyano, nitro, oxo, hydroxyl, C_1-C_8 alkyl, C_1-C_6 hydroxyalkyl, C_1-C_6 haloalkyl, C_{1-6} alkoxy(C_1-C_6 alkyl), C_3-C_7 cycloalkyl(C_1-C_6 alkyl), C_1-C_6 alkylthio(C_1-C_6 alkyl), C_1-C_6 alkylcarbonyloxy(C_1-C_6 alkyl), C_1-C_6 alkylS(O)$_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl), heterocyclyl(C_1-C_6 alkyl), arylS(O)$_2$(C_1-C_6 alkyl), heterocyclylS(O)$_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl)S(O)$_2$, heterocyclyl(C_1-C_6 alkyl)S(O)$_2$, C_2-C_6 alkenyl, C_1-C_6 alkoxy, carboxy-substituted C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_1-C_6 hydroxyalkoxy, C_1-C_6 alkylcarboxy-substituted C_1-C_6 alkoxy, aryloxy, heterocyclyloxy, C_1-C_6 alkylthio, C_3-C_7 cycloalkyl(C_1-C_6 alkylthio), C_3-C_6 alkynylthio, C_1-C_6

alkylcarbonylamino, C_1-C_6 haloalkylcarbonylamino, SO_3H, $-NR^7R^8$, $-C(O)NR^{23}R^{24}$, $S(O)_2NR^{18}R^{19}$, $S(O)_2R^{20}$, $R^{25}C(O)$, carboxyl, C_1-C_6 alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, oxo, hydroxy, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl;

m is 0 or 1;

Q represents an oxygen or sulphur atom or a group NR^9, C(O), $C(O)NR^9$, $NR^9C(O)$ or CH=CH;

n is 0, 1, 2, 3, 4, 5 or 6 provided that when n is 0, then m is 0;

each R^2 and R^3 independently represents a hydrogen atom or a C_1-C_4 alkyl group, or $(CR^2R^3)_n$ represents C_3-C_7 cycloalkyl optionally substituted by C_1-C_4 alkyl;

T represents a group NR^{10}, $C(O)NR^{10}$, $NR^{11}C(O)NR^{10}$ or $C(O)NR^{10}NR^{11}$;

X^1, X^2, X^3 and X^4 are, independently, CH_2, CHR^{12} {wherein each R^{12} is, independently, C_1-C_4 alkyl or C_3-C_7 cycloalkyl(C_1-C_4 alkyl)} or C=O; or, when they are CHR^{12}, the R^{12} groups of X^1 and X^3 or X^4, or, X^2 and X^3 or X^4 join to form a two or three atom chain which is CH_2CH_2, $CH_2CH_2CH_2$, CH_2OCH_2 or CH_2SCH_2; provided always that at least two of X^1, X^2, X^3 and X^4 are CH_2;

R^4 and R^5 each independently represent a hydrogen atom or a C_1-C_4 alkyl group;

R^6 is aryl or heterocyclyl, both optionally substituted by one or more of: halogen, cyano, nitro, oxo, hydroxyl, C_1-C_8 alkyl, C_1-C_6 hydroxyalkyl, C_1-C_6 haloalkyl, C_1-C_6 alkoxy(C_1-C_6 alkyl), C_3-C_7 cycloalkyl(C_1-C_6 alkyl), C_1-C_6 alkylthio(C_1-C_6 alkyl), C_1-C_6 alkylcarbonyloxy(C_1-C_6 alkyl), C_1-C_6 alkyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl), heterocyclyl(C_1-C_6 alkyl), aryl$S(O)_2$(C_1-C_6 alkyl), heterocyclyl$S(O)_2$(C_1-C_6 alkyl), aryl(C_1-C_6 alkyl)$S(O)_2$, heterocyclyl(C_1-C_6 alkyl)$S(O)_2$, C_2-C_6 alkenyl, C_1-C_6 alkoxy, carboxy-substituted C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, C_1-C_6 hydroxyalkoxy, C_1-C_6 alkylcarboxy-substituted C_1-C_6 alkoxy, aryloxy, heterocyclyloxy, C_1-C_6 alkylthio, C_3-C_7 cycloalkyl(C_1-C_6 alkylthio), C_3-C_6 alkynylthio, C_1-C_6 alkylcarbonylamino, C_1-C_6 haloalkylcarbonylamino, SO_3H, $-NR^{16}R^{17}$, $-C(O)NR^{21}R^{22}$, $S(O)_2NR^{13}R^{14}$, $S(O)_2R^{15}$, $R^{26}C(O)$, carboxyl, C_1-C_6 alkoxycarbonyl, aryl and heterocyclyl; wherein the foregoing aryl and heterocyclyl moieties are optionally substituted by one or more of halogen, nitro,

cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl;

R^7, R^8, R^9, R^{10}, R^{11}, R^{13}, R^{14}, R^{16}, R^{17}, R^{18}, R^{19}, R^{21}, R^{22}, R^{23} and R^{24} are, independently hydrogen, C_1-C_6 alkyl, C_1-C_6 haloalkyl, C_1-C_6 hydroxyalkyl, C_3-C_7 cycloalkyl, C_3-C_7 cycloalkyl(C_1-C_4 alkyl) or phenyl(C_1-C_6 alkyl); and,

R^{15} and R^{20} are, independently, C_1-C_6 alkyl, C_1-C_6 hydroxyalkyl, C_3-C_6 cycloalkyl, C_3-C_7 cycloalkyl(C_1-C_4 alkyl) or C_1-C_6 alkyl optionally substituted by phenyl;

R^{25} and R^{26} are, independently, C_1-C_6 alkyl or phenyl (optionally substituted by one or more of halogen, nitro, cyano, C_1-C_6 alkyl, C_1-C_6 haloalkyl, phenyl(C_1-C_6 alkyl), C_1-C_6 alkoxy, C_1-C_6 haloalkoxy, $S(O)_2$(C_1-C_6 alkyl), $C(O)NH_2$, carboxy or C_1-C_6 alkoxycarbonyl);

or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof; in the manufacture of a medicament for the modulation of a chemokine receptor.

11. A method of treating an inflammatory disease in a patient suffering from, or at risk of, said disease, which comprises administering to the patient a therapeutically effective amount of a compound of formula (I), or a pharmaceutically acceptable salt thereof, or solvate thereof, or a solvate of a salt thereof, as defined claim 10.